

In its broadest aspect, the method of the present invention concerns producing a printed packaging material by applying an actinic radiation activatable liquid ink to the material, exposing the ink to a first actinic radiation, applying an energy-curable coating over the ink and curing the coating with a second actinic radiation. As pointed out at the bottom of page 3 of the application, the term "actinic-radiation activatable ink" means that the ink is substantially free of curable functionality, i.e., functional groups that can be cross-linked or polymerized.

The Ohman patent teaches the production of a packaging laminate in which a printing ink is applied to the surface of the laminate, overcoated with a radiation curable lacquer and then cured with UV light or electron radiation. While the Office Action avers that the printing ink is exposed to UV light prior to the application of the radiation-curable lacquer, it is respectfully submitted that the reference does not so state or teach. Instead, paragraph [0031] of Ohman states that a radiation curable printing ink is an ink which can be cured by radiation with UV light but it does not state or suggest that such ink is cured or exposed to UV light prior to being overcoated with a transparent layer. The only sequence involving application of UV light disclosed in this reference is where the radiation curable ink and radiation curable lacquer are simultaneously cured using a common UV radiation source. This is shown in paragraph [0034].

Claims 1, 4, 5, 7, 8 and 11 were rejected under 35 U.S.C.103 over Lovin in view of Edlein.

The Lovin reference teaches a process in which a radiation curable ink is applied to a substrate, partially cured by UV radiation, overcoated with another layer of radiation curable ink and then radiated with UV radiation to cure the first and second ink coatings.

As the Examiner has noted, Lovin fails to teach or suggest the application of an energy curable coating to the ink after the first UV irradiation. It will also be appreciated that Lovin uses radiation curable inks which contain curable functionality.

The Edlein reference teaches a process in which one or more solvent based inks are applied to a thermoplastic packaging material, allowed or caused to be affixed to the material by the application of air and/or heat, overcoated with a pigment free coating containing a polymerizable material and then exposed into ionizing radiation.

This rejection is based on the assertion that it would be obvious to incorporate the use of a radiation curing overcoat in the method of Lovin but the result of doing so would not be the claimed method. The resulting process would still involve the initial application of a radiation curable ink which contains curable functionality. Accordingly, the combination of Lovin and Edlein does not result in the claimed invention and there is nothing in these references, alone or in combination, which teach or suggest the further modifications which would be required in order to realize the invention.

Claims 1, 2, 5, 6, 9 and 11 were rejected under 35 U.S.C. 103 over Mossbrook in view of Lovin. This rejection is also respectfully traversed.

Mossbrook discloses a method in which a printed image is applied to a film using a radiation curable or solvent based ink followed by applying an overprint varnish and curing the overprint varnish with radiation energy. Mossbrook fails to disclose exposure the ink to UV after being applied to the film and before the overcoating. The Lovin reference is relied on to show applying a radiation curable ink and curing it after application to a substrate. Incorporating that procedure in the Mossbrook method would

not result in the claimed invention since it involves applying an ink containing curable functionality onto the substrate whereas the invention uses an actinic radiation activatable ink which is substantially free of such functionality. That is clearly unobvious since there is no apparent reason to subject an ink free of curable functionality into an energy curing system such as UV or EB.

Claims 1, 11, 15, 16 and 17 were rejected under 35 U.S.C.103 over Mossbrook in view of Lovin and Chatterjee. This rejection is respectfully traversed.

The combination of Mossbrook and Lovin has been discussed above. Chatterjee is relied upon solely to disclose a radiation curable aqueous composition in which a solvent rub test is performed. This additional reference does not cure any of the deficiencies in the combination of Mossbrook and Lovin and, therefore, these claims recite patentable subject matter.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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